



NOAA
FISHERIES

SEFSC

Data Collections:

Priority Setting, Challenges, Outlook

Data Collections Program Review
5 June, 2013

Prioritizing Data Collection Requirements

Criteria/Strategies for Priority Setting

- Stock
 - Status (increasing; decreasing)
 - Importance (ecological, economic)
- Assessment end users' perspectives
 - Councils', HMS, ICCAT research priorities
- Data collection partners' perspectives
- Geography
- Collection Type (fishery-independent, fishery-dependent, biological)

More on Data Collection Type

- Fishery-independent
 - Spatial coverage
 - Temporal coverage
 - Survey periodicity
- Fishery-dependent
 - Timeliness
 - Precision
- Biological sampling
 - F-I
 - F-D

Tools for Prioritizing

- Strategic planning
- Crisis management
- Cost/Benefit analysis followed by monitoring for return on investment
 - Power analysis to optimize sample size
 - Weigh decisions on survey periodicity

Data Collection Challenges

Ship Time

- NOAA Fleet
 - *Pisces* (Dyson Class) -Commissioned 2009; 64m
 - *Gordon Gunter* (Navy T-AGOS 18; Commissioned as Relentless 1989 Commissioned by NOAA 1998
 - Oregon II; Commissioned 1977; 52m
- SEFSC Small Boats
- Charters (industry, academic fleets)

Regional Challenges – Some Examples

- Gulf of Mexico
 - Oil spill impacts
 - Post oil-spill data demands
- South Atlantic
 - Past over-reliance on fishery-dependent data
 - Young fishery-independent time series
- Caribbean
 - Accuracy and timing of landings data
 - Lack of fishery-independent data
 - Lack of biological samples

Data Collection Outlook

**Innovation to improve Efficiency,
Quality and Timeliness**

Electronic Monitoring and Reporting

- Management – catch and landings
- Science – socio-economic and stock assessment
- Enforcement – MPAs, Catch Shares
- Cost effectiveness – improve efficiency from current practices

Electronic Monitoring

- VMS
- Shrimp Effort
 - Subset of fleet is instrumented
 - GPS-based unit records location on 10-min time interval
 - Algorithms to estimate precise estimates of effort
- Pilots for augmenting observer data

Electronic Reporting

- ✓ Commercial dealers
- ✓ Recreational headboats
- Commercial vessels
- Recreational charter
- Recreational private boats

Technology Initiatives

- Catchability/Untrawlable Habitat
 - Towed camera arrays for hard bottom surveys
 - Ground truthing acoustic data
 - Methods to assess pelagic species e.g., airborne LIDAR
 - Passive acoustics
 - Improved methods for estimating swept area for trawl surveys

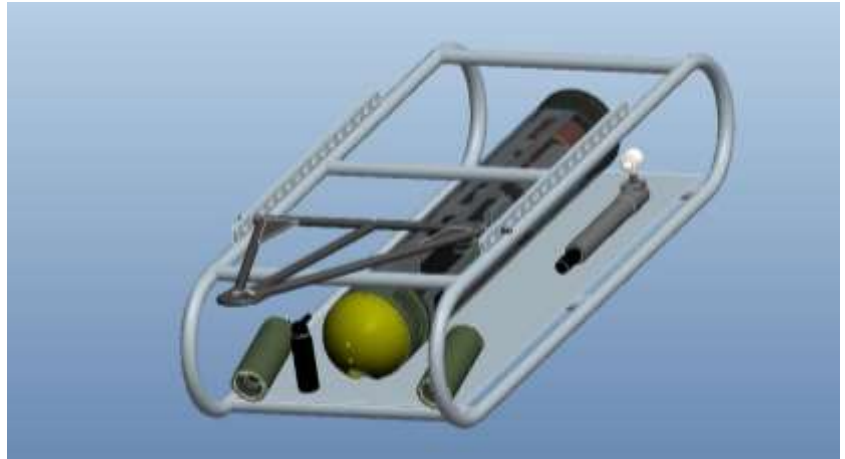
Technology Initiative Example

Camera-based Assessment System (C-Bass) - USF

Goal: More rapid and precise direct estimates of population size, recruitment and population demography of target populations in hard bottom habitats as compared with traditional fishery independent surveys (trawl & long line, etc.)

Payload

- 3 Video cameras
- Altimeter
- Seabird CTD
- Wetlabs fluorometer
- Turbidity meter



Optical Imaging/Signal Interpretation

- Video and stills from stationary cameras
- Video from AUVs and towed arrays
- Acoustic data
- Multibeam - habitat characterization and mapping
- Satellite data for adaptive sampling protocols
- Automate plankton ID

Evolution to Ecosystem-based Approaches

- Incorporation of habitat data into stock assessments
 - Changes in nursery habitat volume, quality
 - Comprehensive habitat characterization to guide sampling strategies
- Climate change
 - Oxygen depletion zone
 - Distribution and density changes of populations
- Socio-economic scenarios for decision support

Gulf of Mexico Gag Grouper Assessment

**In addition to conventional assessment approach,
incorporate ecosystem data**

- Satellite-derived index of red tide
- Connectivity modeling for recruit movement
- Natural mortality rates
 - General
 - Due to red tide
- Diet composition